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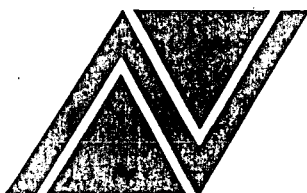
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ABSTRACT

This document is the first in a series of annual, faculty-designed supplements to Nassau Community College's (NCC's) (New York) manual, "Concepts & Procedures for Academic Assessment." The supplements are intended to provide faculty a forum through which they can communicate assessment designs and the impacts of those designs on student learning in their classrooms. Each article is written by a faculty member who is participating in the classroom assessment process, and who is committed to using that process to optimize the quality of the education achieved in his or her classroom. This supplement includes eight articles, each addressing different assessment methods: (1) "A New Faculty Member's Account of the NCC Assessment Process" (Michael Perna); (2) "Guidelines for Planning and Implementing Course-Based Assessment" (Gregory J. Lehenbauer); (3) "Traditional and Nontraditional Tools to Measure Student Learning" (Kumkum Prabhakar); (4) "Using a Knowledge Pre-test/Post-test to Assess Teaching Goals" (Lyle Hallowell); (5) "The Multi-section Course Challenge: Assessing COM 103" (Esther Bogin); (6) "The Assessment Process and Student Ownership Of Their Learning (Nontraditional Ways to Assess Learning)" (Esther Bogin); (7) "A Rationale for Eliciting Student Feedback" (Patricia Caro); and (8) "COM 101: A Student-Based Assessment Model" (Errol Hibbert). Appended is a four-page pullout that summarizes the goal-based assessment process. (JA)

NASSAU COMMUNITY COLLEGE



THE ASSESSMENT SUPPLEMENT

*A Faculty-Designed Addition to NCC's Manual,
"Concepts & Procedures For Academic Assessment"*

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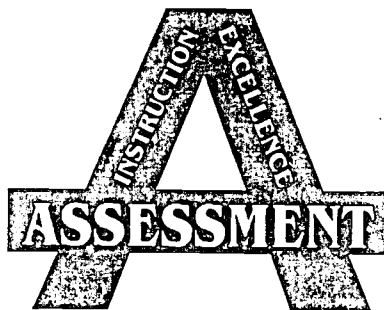
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FIRST EDITION

ASSESSMENT COMMITTEE OF THE ACADEMIC SENATE

April, 2000

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*To Support The Quest for Excellence
in Teaching and Learning at Nassau Community College*
§

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THE ASSESSMENT SUPPLEMENT

First Edition April, 2000

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This Issue's Editorial Staff:

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PROLOGUE I

The Purpose of Assessment at Nassau Community College

John Ostling, Vice-President for Academic Affairs

I am pleased to forward to you - the teaching faculty - the first in the series of annual supplements to the College's Assessment Manual. The supplements are intended to provide a regular publication through which faculty can communicate assessment designs and the impacts those designs have had on the learning of students in their classrooms.

As you know, the systematic assessment of student learning conducted by faculty in the courses they teach is part of this college's response to the quality assurance mandates of accrediting and governmental agencies. Collectively, these mandates direct all institutions of higher education to assess the outcomes of their activities and to seek ways to enhance the effectiveness with which they achieve their educational missions. Classroom Assessment is that part of the College's Comprehensive Assessment Plan that focuses on maximizing the educational effectiveness of the classroom environment. I believe it is the most important component because much of the College's educational mission is in fact accomplished through classroom instruction.

Your efforts to integrate classroom assessment into your teaching methods and the learning activities of your students are, therefore, vital to the ability of the College to "plan for excellence" through its Comprehensive Assessment Plan. At present, that plan coordinates three operational areas of outcomes assessment:

Classroom (Course-level) Assessment
Academic Program Review
Institutional Mission Review

The outcomes associated with expectations for students' learning as a result of the particular courses they take is the focus of *classroom assessment* while the cumulative outcomes resulting from students' involvement with the academic major are assessed through *program review*. The analysis of these outcomes, along with the impacts of the College as a whole both inside and outside the institution, then provides the basis for the examination of institutional effectiveness through the process of *mission review*. So, as teaching faculty, you should know that your work in the first of these processes is a fundamental part of a larger strategy to enhance institutional effectiveness and meet external mandates.

As part of these same mandates, a fourth area of outcomes assessment that addresses

Student Development Outcomes

is currently being developed by the non-classroom teaching faculty to include the impacts of the co-curricular and extracurricular services and experiences at the College.

Assessment has laid an ambitious agenda before the College and its faculty. As a central part of that agenda, the Office of the Vice-President for Academic Affairs will continue to work closely with the Academic Senate Assessment Committee to facilitate the implementation of Classroom Assessment across all teaching departments. It is my hope that you - the teaching faculty - will find this document helpful in advancing the implementation of classroom assessment in the courses you teach and that your expectations for educational excellence can be realized through that process of inquiry and scholarship.

Welcome to the first issue of the NCC Assessment Supplement!

PROLOGUE II

Objectives of The Supplement

The Academic Senate Assessment Committee
Manual Revision Subcommittee

The Supplement was written as a pragmatic and concise extension to the Academic Senate Assessment Committee's (ASAC) current manual, "Concepts and Procedures for Academic Assessment" (February, 1999), which was designed to assist faculty in their quest to achieve excellence in instruction and learning through systematic classroom assessment. Answers to substantial questions about the background, evolution of assessment at NCC, basic tenets and principles, the GBA matrix format for data recording, and the role of general education can be found in this manual. You are encouraged to revisit it.

While *classroom assessment* offers faculty and students opportunities to make systematic inquiries into the teaching and learning processes, it also represents a partnership between them. The participation of faculty and students in the evolution of the process itself has resulted in requests for more "user-oriented" information about assessment that addresses:

- Methodologies for linking assessment with teaching and learning
- Strategies for implementing measurements that are more diagnostic of students' learning to supplement traditional methods of assessing students
- Ways to overcome obstacles common to participants in this process
- Ways to increase student and faculty ownership and reduce reluctance to participate in this process
- Examples of quantifying qualitative measurements
- Examples of the use of pre-tests and post-tests

...and the list continues to grow...

Hence, following the publication of the ASAC's principles-oriented Manual, the Assessment Supplement is a natural, next step taken to improve the information that supports the faculty-owned, faculty-driven, faculty-designed process of assessment at NCC. It is written by faculty who are participating in the classroom assessment process, and who are committed to use that process to optimize the quality of the education achieved in their classrooms. Although as faculty members we come from varied disciplines, we are faced with common challenges in the planning, development and implementation stages of this process. Many of us have opened dialogues (informal conversations in learning) with each other, demonstrating a need to share and discuss problems and possible solutions, to share and discuss 'what has worked, what is working, what is not working, and, optimistically, what will work.'

It is suggested that you regard the written materials contained in this supplement as another opportunity for engaging in informal conversations in learning with your colleagues. You are invited to extend these conversations by contacting the author(s) whose ideas interest you or by making a future contribution to its contents.

Enjoy this first issue. We look forward to future dialogues with you, as well as your input and feedback on the issues of teaching and learning that assessment seeks to resolve.

ARTICLE

A New Faculty Member's Account of the NCC Assessment Process

Michael Pema, Criminal Justice

As I complete my first year at Nassau, I see my role as a member of the Assessment Committee to be vital in contributing to the excellence of the student learning process. That's right, the student learning process. That is, I see assessment at an academic institution as the touchstone of the transition in higher education from teaching-centered instruction to learning-centered instruction. First, I would like to identify this transition in a little more depth. Then I would like to make some suggestions, both procedural and substantive, in reference to the assessment process from the perspective of a new faculty member.

The first statement in the preface of the College's Academic Assessment Manual speaks to the importance of assessment in maximizing the learning process. It states, "The ultimate goal of assessment is to engage faculty in systematic efforts to maximizing students' learning and, thereby, the educational excellence of the institution." When I first read this statement I took notice of the implied application of systems analysis to the learning process. I began to take inventory of the various resources offered at NCC and in the community at large to enhance student learning. To my mind, it is critical that the Assessment Committee work to convince members of the campus community that assessment is not a threat to their professional status, academic freedom, or a bureaucratic control mechanism, but a process to enhance our status as professionals and more importantly, the quality of the student learning process.

To follow up on this point, as we enter the new millennium, the expectations are for community colleges to become the exemplars of learning institutions, institutions that facilitate the opportunities that maximize learning for their students. I also realize that this expectation may be at odds with the traditional role of institutions of higher education: which is to provide instruction. Within a theme of assessing learning, not instruction, our goal becomes focused on the identification of learning goals and the documentation provided by critical measurements of the success of students in achieving that expected learning. And the underlying motivation for all of this is our passion for continuous improvement of the learning process. The traditional results that concern full-time enrollments, course offerings, program configurations, improved revenues and physical resources can only be reached once the student learning needs of the institution are in view through a campus-wide commitment to a learning-centered assessment process. For improved learning enhances the worth of the Nassau graduate, and in turn the reputation of the College as an institution that values learning, both being pre-requisite (or at least co-requisite) to the success of the College in these other areas. This should be the first and clearest message that new faculty receive as they begin their teaching careers at Nassau Community College.

As a new faculty member assigned to the Assessment Committee and to the responsibilities of Departmental Assessment Coordinator for the Criminal Justice Department, this whole process of assessment has been a daunting challenge. I was fortunate to have my Assessment Committee colleagues as a resource. They quickly oriented me to the process to a degree that has given me the capacity to bring some leadership to the process within my own department.

The following are some observations and suggestions pertaining to assessment from the perspective of one who encountered a responsibility to that process in the first year of service to the College:

- The need exists for a substantive orientation of new faculty to the assessment process. Members of the Assessment Committee could conduct an orientation for new faculty on a campus-wide basis or the individual assessment coordinator, on a departmental basis. I would suggest doing this separately from the usual orientation for new faculty. This will serve to stress the importance of assessment as a mainstream academic process. Perhaps, a

workshop format where new faculty receive a certificate or letter of attendance for their tenure file would be best to encourage attendance.

- There is a need for a Departmental Assessment Manual
New faculty members should receive a Department Assessment Manual containing the specific policies and assessment designs (matrices) formulated by the department for its own courses, in addition to the manual that addresses concepts and college-wide procedures that is distributed to all faculty. The departmental assessment coordinator should serve as mentor to all new departmental faculty members in reference to assessment issues and responsibilities.
- Provide a resource list to all new members of the College-wide Assessment Committee.
Every member of the College-wide Committee should receive a copy of "*Classroom Assessment Techniques: A Handbook for Faculty*" (Cross & Angelo, 1993) and access to the materials collected through an Assessment Resource Center located at OIR. The Committee has talked about organizing such a center, which in my opinion is an excellent idea.
- Develop a networked information system for faculty to access student academic data.
This would provide teaching faculty with a vital resource to analyze and anticipate student academic needs before such problems occur. Faculty would have a basis for planning and adjusting modes of instruction to facilitate the learning needs of individual students.
- Isolate sections of the college-wide Assessment Manual for focused distributions
For example, take section III of the Assessment Manual and, with a few modifications, make it into a brochure for new faculty members and newly assigned assessment coordinators.
- Develop Implementation & Coordination Procedures for assessing multi-section courses
Examples of specific implementation procedures to develop agreement among instructors involved in the teaching of the same course with regard to uniform learning goals and measurement strategies are deficient in the current college-wide manual. While the issue here is to give the course instructor ownership of the assessment process, some degree of uniformity in the process among multiple sections of the same course is also expected. Perhaps, some type of teaching goal rotation method might be useful for some situations where individuality is an overriding goal.
- Clarify specific assessment policies that apply to adjunct faculty
The role of adjunct faculty in the assessment process remains unclear and many questions remain concerning their contractual responsibilities in relation to this process. There is a need for the College Administration and the college-wide Assessment Committee to develop explicit policies covering these issues.

For more information, you are invited to contact this author:

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ARTICLE

Guidelines for Planning & Implementing Course-Based Assessment

Gregory J. Lehenbauer, Physical Sciences

ABSTRACT

The experience in developing a course based assessment plan in a multi-sectioned undergraduate course in meteorology is described. A method for breaking a course down into its various topics and sub-topics is demonstrated. Once a course is broken down into as many separate components as possible, the process of course assessment is then continued by developing the first three columns of the GBA matrix for three selected sub-topics. During the semester, the measurement tools are implemented after the sub-topics and topics have been taught. Upon evaluating the results of the measurement tools, modifications during the following semester can be made and applied to the behavioral outcomes, the teaching methods, supplemental tools or measurement tools to see if improvements in learning can be achieved in the next set of measurement results. This process can continue for each particular sub-topic until the desired student results are obtained. Upon obtaining the desired results, the assessor can then move onto another sub-topic to be assessed and continue this process until all of the 100 or more sub-topics have been assessed. Upon assessing all of the individual sub-topics, the process begins anew with the first topic on the list. This continuous process lends itself easily to be adapted as new material is brought into the course or as previous material becomes outdated. This whole process provides a method of course assessment carried out by the instructor. Taken in the proper context this kind of assessment can improve teaching and learning as it clearly indicates what students understand and what modifications need to be made to the teaching method, goal or measurement design and its implementation.

1. Introduction

The need to delineate a method of planning and developing course based assessment arose as one of the difficulties in implementing the plan for continued assessment of all sections of all courses at Nassau Community College in Garden City, NY. In some areas, instructors successfully broke down their courses into the many various sub-topics that are found in each particular course. In other areas, instructors only broke their courses into a handful of topics. After implementing the assessment process defined in the manual entitled *Concepts & Procedures for Academic Assessment* produced by the Assessment Committee of the Academic Senate at Nassau Community College (NCC) in February of 1999 questions were asked as to what to do next. It became evident that breaking down a course into only a handful of topics did not clearly reveal whether a student understood everything about that topic. The measurement tools which were used revealed that in general the students understood the basics of the topic, but it did not clearly show whether all aspects of the topic, which were taught, were understood. Therefore, the assessment process has to be taken a step further. In other words, a course has to be broken down into as many sub-topics as the course allows before the assessment process can be implemented. The remainder of this article provides a

method for breaking down a course in meteorology into its many sub-topics and then discusses a plan for implementing assessment that covers all of these sub-topics.

2. Breaking down a course

The first problem encountered in assessing an entire course is to determine what topics are going to be assessed. One has to be careful not to make the individual topic too broad or one would still not know whether or not students were fully comprehending all of the subject matter. The first task then is to break down a course into its individual sub-topics or teaching goals. For any course, one could begin with the course description found in the college catalogue. For the meteorology course the description found in the NCC Catalog (1998-2000) is as follows:

SCI 107 Elements of Meteorology: The study of the basic principles that affect daily and long range changes in the weather. The formation of thunderstorms, lightning, tornadoes and hurricanes will also be studied. Laboratory exercises include the study of weather instruments, surface and upper air maps and weather forecasting.

In this description, we find that many topics will be covered in this course. As in most course descriptions, only broad topic areas are mentioned. Each of the mentioned topics contains many components which when combined enables one to understand the main concept. For example in order for a student to understand a surface map he or she would need to first understand the following sub-topics: 1) high pressure system, 2) low pressure system, 3) isobars 4) warm front, 5) cold front, 6) stationary front 7) occluded front, and 8) the components of a surface station model. Consequently, it would probably be best to determine if a student understands these eight separate topics before assessing the concept of a surface map. Notice that the description also is vague in that it uses the wording, 'basic principles that affect daily and long range changes in the weather'. The basic principles of meteorology are too numerous to mention in the space provided. They take upwards of around 20 of the 30 lectures and over half of the labs to cover. To give a ten minute measurement instrument on just these basic principles would not tell an instructor whether a student understands all of the principals nor would it be easy to determine which of the basic principles the student is not understanding. Thus, the course description can be used as a starting point, but due to its vagueness should not be used as a primary means for breaking a course down into its individual topics.

Another place to turn is the course textbook. Although not all courses use textbooks, as some courses allow an instructor to choose from a number of different smaller texts or other written literature, the textbook is usually the place where one finds many general topics and sub-topics. These topics usually start off simple and then build upon one another so that students can then grapple topics that are more difficult. In SCI 107 the following textbook chapters are covered:

- 1) The Earth and Its Atmosphere
- 2) Energy: Warming the Earth and the Atmosphere
- 3) Seasonal and Daily Temperatures
- 4) Light, Color and Atmospheric Optics
- 5) Atmospheric Moisture
- 6) Condensation: Dew, Fog and Clouds
- 7) Stability and Cloud Development
- 8) Precipitation
- 9) The Atmosphere in Motion: Air pressure, Forces and Wind
- 10) Wind: Small-scale and Local Systems
- 11) Wind: Global Systems
- 12) Air Masses and Fronts
- 13) Middle Latitude Cyclones
- 14) Weather Forecasting
- 15) Thunderstorms and Tornadoes
- 16) Hurricanes

Upon examining these chapters, we encounter the same problem as before. Each chapter contains many things that build upon themselves in order to understand the main concept. For example Chapter 9 contains the following sub-topics: atmospheric pressure, measuring pressure, surface and upper air charts, Newton's Laws of Motion, forces that influence the winds aloft, pressure gradient force, Coriolis force, wind flow aloft, geostrophic wind, winds around high and low pressure systems, winds on upper-level charts, surface winds and winds and vertical air motions. All of these topics need to be introduced before a student can fully understand the Atmosphere in Motion.

Probably the best place to find a list of topics, sub-topics and concepts that should be assessed is in the official course outline. These are on file in the various departmental offices and also in the Dean of Instruction's Office. Upon looking at this document, one finds a listing of all of the items that need to be covered when a course is being conducted. Here is where one begins to find sub-topics that are not as broad as those discussed before. The following is a modified listing of topics and lab exercises that are to be covered in the meteorology course, the basics of which can be found in the official course outline:

1. The Atmosphere
 - Composition
 - Atmospheric layers
 - Pressure
 - Temperature
 - Ionosphere
 - Exosphere
 - Ozone depletion
2. Solar and Terrestrial Radiation
 - Heat and energy
 - Temperature
 - Scales
 - Temperature measuring devices
 - Inversion
 - Daily temperature variations
 - Isotherm analysis**
 - Energy transfer
 - Radiation
 - Wavelength
 - Types
 - Stefan Boltzmann Law
 - Wien's Law
 - Conduction
 - Convection
 - Effects of Albedo on temperature
 - Effects of heat capacity on temperature
 - Warming the air from below
 - Energy balance
 - Atmospheric greenhouse effect

- Seasons
 - Causes
 - Sun angles
 - Length of day
- 3. Pressure
 - High pressure system
 - Low pressure system
 - Behavior of gases
 - Gas laws
 - Boyle's Law
 - Charles Law
 - Gay-Lussac's Law
 - Pressure measuring devices
 - Isobar analysis**
- 4. Water in the Atmosphere
 - Phases of matter
 - Hydrologic Cycle
 - Absolute humidity
 - Specific Humidity
 - Mixing Ratio
 - Relative Humidity
 - Dew-point temperature
 - Wet bulb temperature
 - Humidity measuring devices
 - Heat index
 - Fog Types
 - Dew, Frozen Dew, Frost, Black Frost
 - Cloud types
 - Precipitation
 - Formation
 - Types
 - Condensation nuclei
 - Ice Crystal Process
 - Collision Coalescence Process
 - Supercooled water
 - Precipitation measuring devices
- 5. Stability
 - Skew-T diagram**
 - ELR
 - Adiabatic Processes
 - MALR
 - DALR
 - Determining atmospheric stability
 - Absolutely Stable
 - Neutral Stability
 - Absolutely Unstable
 - Conditional Stability
- 6. Winds
 - Forces that generate winds
 - Wind-chill factor
 - Circulation around high & low pressure systems
 - Surface and upper level winds
 - Buys-Ballot's Law
 - Local Winds
 - Sea/Land Breeze
 - Mountain/Valley Breeze

- Global winds
- 7. Air Masses
 - Source regions
 - Classification
 - Modification
- 8. Fronts
 - Four types of fronts
 - Warm front**
 - Cold front**
 - Stationary Front
 - Occluded Front
 - Polar Front Theory
- 9. Maps and Forecasting
 - Surface maps
 - Surface station model**
 - Analyzing
 - Upper-air maps
 - Upper air station model**
 - Analyzing
 - Present weather analysis
- 10. Severe Weather
 - Severe weather analysis
 - Thunderstorms
 - Tornadoes
 - Hurricanes
 - Winter Storms
- 11. Atmospheric Optics
 - Scattering of light
 - Hazy skies
 - Crepuscular rays
 - Refraction of light
 - Blue skies
 - Red suns
 - Rainbows

3. Assessment

Once this list is in hand all of the faculty members, both full time and adjunct, involved in teaching this course should sit down together and see if there are any other topics that should be included in this list. The above list differs from the listing on file in the Dean of Instruction's Office as many more details and sub-topics have been added. Note that one of the goals of assessment is to bring the faculty together to begin discussion on the courses that they teach. This is one of the first times that discourse of this nature can take place between faculty. Once this list has been agreed upon then the process of course, assessment can begin. Notice that each of the numbered general topics contains many other topics and sub-topics. Therefore, before assessing the overall numbered general topic, it would be best to assess each of the individual topics and sub-topics. This is the only way in which faculty can truly determine what a student knows and does not know about a general topic.

The meteorology course was one of two pilot courses in the Physical Sciences Department in which assessment began in the spring of 1998. The topics that were initially chosen for assessment are in bold print on the above list. In addition to these topics a Problem Solving and Reading Comprehension Assessment were both planned. It is suggested that when beginning assessment for the first time faculty should choose three of the sub-topics on their list, possibly choosing them so that they are covered at different points in the semester. Faculty should then develop the first three columns of the GBA Matrix as outlined in the manual entitled *Concepts & Procedures for Academic Assessment* produced by the Assessment Committee of the Academic Senate at NCC in February of 1999. Upon concluding the lecture or lab covering the subject matter to be assessed a quiz or test should be given in which the measurement tool is implemented as designated in the third column of the GBA Matrix. It is suggested that faculty not inform students of the purpose of this quiz and to count the results in the students overall course grade. This of course will make the results more reliable as students are more likely to not just randomly write down answers.

Once the measurement tool has been implemented this now a time for all faculty members teaching this course to reconvene and discuss the results of this measurement tool. This should not be a time of placing blame or finger pointing, but should instead be a time where faculty discuss pedagogy to learn from each other for the overall goal of aiding the student in learning more of the subject matter. The faculty members overall evaluation of the measurement tool can be written into the fourth column of the GBA Matrix and any modifications to the behavioral outcomes, the teaching methods, supplemental tools or measurement tools can be described in the fifth column of the GBA Matrix. If the general consensus of the group is that the teaching goal has been successfully achieved and no modifications are necessary then another sub-topic can be chosen from the list. This of course means developing the first three columns of the GBA Matrix for the new sub-topic. The following semester then any sub-topics in which modifications were necessary and any new sub-topics should be assessed. The process of assessing three sub-topics a semester, including the faculty dialogue then shall continue until all of the sub-topics have been completed. Once comfortable with the process faculty can agree to increasing the sub-topics to be assessed to six or more a semester. It will take many years to cover all of the topics on the list and since assessment is a continuous ongoing process, upon completion it should then be restarted.

A sample completed matrix from the meteorology course on the sub-topic of the surface station model

has been included as an example. This sub-topic was assessed over the course of three different semesters by Professor Lisa Bastiaans and the author of this article. It took several modifications to the laboratory lecture and a revision of the meteorology laboratory manual to achieve the desired results from the students on the measurement tool. After the conclusion of the spring 1999 semester it was decided that this particular sub-topic could be put aside for a few years. During the Fall of 1999 work began on the new sub-topic of the upper-air station model and work is scheduled to begin on the Skew-T diagram in the Spring of 2000 which are both italicized on the above list.

4. Conclusion

This article, with examples from a meteorology course, provides a method for faculty to break down their courses into the many and various sub-topics needed for course assessment. It is important not to make the sub-topic too broad, as it can become difficult to assess whether a student fully comprehends all aspects of the sub-topic. The GBA Matrix should then be developed for three of the sub-topics on the list and measurement tools should be implemented during the semester. Upon receiving the results of the measurement faculty should convene to evaluate the results and plan any modifications that need to be made to improve student learning. This process should continue each semester assessing the various sub-topics until the desired measurement tool results are obtained and all of the sub-topics have been covered. Once this occurs then the process should begin anew.

One critical aspect of the assessment process is faculty dialogue. It becomes difficult to successfully assess a course, especially in multi-sectioned courses when faculty do not sit and discuss the results and methods that can be implemented to improve the results. It may be very beneficial to faculty, students and the learning process in general to include in a college's academic calendar a club hour or two each semester that is dedicated only to the assessment process. On these days faculty could convene and discuss the entire process of academic assessment as it pertains to their courses. If done correctly the assessment process should help to insure that students are learning what instructors think they are learning.

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ASSESSMENT MATRIX

SCI 107 An Introduction to Meteorology

Teaching Goal What it is faculty are trying to teach students in a particular lesson, unit or course.	Behavioral Outcomes Observable behaviors or actions on the part of students that demonstrate that the learning intended in the teaching goal has occurred.	Measurements Strategies / techniques / instruments for collecting feedback data that evidence the extent to which the desired behaviors are demonstrated by students.	Evaluation Analysis and interpretation of the measurement results to determine the effectiveness with which the teaching goal is being achieved.	Modifications Recommended actions that respond to the measurement results for improving the achievement of teaching goals
<p>SURFACE STATION MODEL</p> <p>Know the 18 different weather elements and their standard location around a surface station model.</p> <p>Know that the surface station model conveys voluminous weather information in a confined space. When this data is plotted for numerous cities on a map of the U.S., the state of the atmosphere near the surface becomes apparent.</p>	<ol style="list-style-type: none"> 1. Plot a sample station model using pre-recorded weather data. 2. Decode various station models to determine the present weather at each of the given locations. 3. Make a weather observation at Nassau Community College and plot this data around a station model. 	<ol style="list-style-type: none"> 1. Decode a station model into its various weather elements. 2. Plot data from a weather observation around a station model. 3. Short answer question: What is the purpose of a station model? 	<p>During a lab period, the students were instructed on how to plot 18 weather elements around a surface station model. There was an exercise that followed, asking them to plot 12 of the 18 weather elements for 130 cities on a map of the U.S.</p> <p>For the quiz, the students were asked to plot 9 current weather elements from Islip MacArthur Airport around a station model circle.</p> <p>50 students took this quiz.</p> <p>44.0% earned a grade of 100% (9/9) 24.0% earned a grade of 89% (8/9) 16.0% earned a grade of 78% (7/9) 6.0% earned a grade of 67% (6/9) 10% of the students failed the quiz.</p> <p>This quiz is similar to the others that have been used in the last two semesters. The change we made this semester was in the lab exercise. In the past, students did not do well interpreting one of the weather elements, namely visibility. For this semester, we changed the exercise and presented visibilities with exact numerical values of 10 miles and greater as well as writing > 10 miles.</p> <p>The lab exercise which students often call busy work does help them learn how the data is plotted on a weather map. Being able to read the data from a station model is crucial to later lecture and lab exercises.</p>	<p>The learning intended in the laboratory exercise on plotting data around a surface station model has achieved it's goal. 68% of the students earned a grade of 89% or higher and 90% of the students passed this quiz.</p> <p>From the recommendations we made last semester, we made some changes in the surface station model lab exercise. High visibilities are now represented in more than one way. Some of the visibilities that are greater than 10 miles are written as >10 miles and others are written as the actual value that is greater than 10 miles (e.g. 25 miles). With this added variety, students were more successful in plotting the visibility as only 28% of the students were not successful in accurately plotting the visibility. This number is down from 37% in the Fall 1998 semester.</p> <p>We don't feel there is a need to modify the quiz.</p> <p>We don't feel there is a need to make any further changes in this lab exercise.</p>

ARTICLE

Traditional & Non-traditional Tools to Measure Student Learning

Kumkum Prabhakar, Biology

The curriculum for Introductory Biology for non-majors (Bio 102) includes topics such as reproduction, genetics, evolution, and ecology. Faculty, by consensus, decided that genetics should become focus of their assessment efforts during the fall 1998 Semester to evaluate student learning. Specific goals for this subject area were formulated around the Principles of Inheritance. The goals addressed faculty expectations for students' acquaintance with the numerous key terms underlying the laws of inheritance, as well as an understanding of their conceptual content and recognition of various critical applications or implications, such as cloning, genetically engineered crops and genetic disorders. The Assessment Matrix (enclosure 1) provides an overview of the specific areas in which student performance data were collected. The measuring tool designed for this purpose was a typical test containing multiple choice and short answer items addressing terms and their definitions, short essays on specific aspects of the laws of genetics, and genetic problems related to patterns of inheritance. The application of this "traditional" content-oriented measuring, it was felt, covered areas needed to make connections with newspaper articles about DNA fingerprinting, gene therapy or genetically engineered crop. The tool was administered uniformly across all sections of Bio 102, and the faculty teaching those sections pooled the data pertinent to students learning of the Principles of Inheritance.

I made some modifications for evaluating learning about Patterns of Inheritance for my WebCT enhanced Bio 102 sections during spring 2000. These modifications moved away from the venue of traditional testing by integrating requirements for the collection of information from the library, web-based resources, encyclopedia, and CD-ROMs to enhance scientific literacy. Structured guidelines and a measuring tool with specific evaluation components were posted on the WebCT template (enclosure 2). Students were required to utilize the various technological resources in demonstrating their comprehension of key course concepts to complete this assignment.

Instructors integrating technology in their teaching curriculum do, of course, have to build in assistance mechanisms to help students recognize dependable sources of information. In BIO 102, for example, students are introduced to methods for accessing the online reference units of the Nassau Community College library. They are encouraged to visit the websites of such organizations as Medline, National Institutes of Health and Cold Spring Harbor Laboratories to seek information. This nontraditional strategy for assessing learning, then, not only satisfies the need to document students' academic performance but also empowers them in the use of technology to conduct research associated with the completion of assignments and in the making of presentations in all courses. At the same time, this assignment modality, while building students' research, reading, and thinking skills, is also structured to make connections with the concepts and principles of subject matter that tends to make-up the majority of the content of departmental, discipline-oriented courses. Successful completion of the various components of the BIO 102 assignment, for example, required an understanding of the key terms and concepts of Mendelian and Molecular Genetics. That measuring tool included five components: describing the topic (e.g., genetic disorder), answering topic-specific questions about what has been learned, including research from authentic sources e.g., websites), formulating an annotated bibliography, and preparing an outline for oral presentation. The intended outcome of the assessment was for students to expand their research skills while exploring various aspects of a subject-appropriate topic.

One problem encountered in the BIO 102 assignment is the dilemma of the information age itself: that a topic may have an overwhelming number (e.g., a few hundred thousand) of available on-line references. Students had to be reminded of their focus in conducting factual research related to *one* genetic disorder and the need to learn how to narrow their searches to more appropriate references. Class sessions covering the subject matter concepts on genetics were timed to occur during the three weeks given for the assignment. This helped students relate their assigned problem to the subject matter taught in class and to meet the requirement of including a reference about their problem that relates directly to that

subject matter. Brief in-class and out-of-class reviews of the progress of their research, followed by visits to the computer lab to quickly resolve students' problems in collecting information did much to keep students on task and to maintain steady progress toward the assignment's completion by the announced due date.

The effectiveness of this research assignment in functioning simultaneously as a teaching strategy and an assessment tool appeared positive. The evaluation of students' performance indicated that the assignment was effective in providing a broad knowledge about the topic of genetic disorder, a specific knowledge of the laws of inheritance, and a level-appropriate recognition of the central theory of molecular biology. After concluding their research assignments, students in the next Web-enhanced BIO 102 class, will be given the same traditional test as the other students enrolled in BIO 102 to further validate the results of the research assignment as an assessment tool. It should be expected that the test performance of the students receiving the research assignment on genetic disorders would be higher than those who did not. The reverse scenario might indicate insufficient learning under the research method or a lack of validity of one or the other assessment tool. Such cross validations of instructional methods and assessment instruments is common in systematic classroom research.

Validity issues notwithstanding, the research assignment as a non-traditional, performance-based assessment tool appears to offer a simultaneous instructional strategy that is useful in promoting students' learning of facts, application of principles, and exposure to examples related to the specific subject matter goals encountered in a variety of academic disciplines. The efficient use of this instructional/assessment strategy is best achieved in a technologically enhanced course/curriculum. A decided motivational advantage is derived from the fact that students enjoy the integration of technology and academics and the empowerment they derive from that integration in their ability to visualize complex dynamic phenomena. What remains to be seen students is whether students derive improved scientific literacy through this kind of instructional strategy when subjected to the standards employed in traditional tests.

Despite the promising results obtained in this single course experiment, the difficulty in administering such a modified assessment tool in multi-sectional courses can be readily appreciated. I would appreciate feedback from those faculty members who are administering similar kinds of assessment tools across multi-sectional courses. Indeed, any sharing of ideas on the implementation of non-traditional tools between disciplines will assist all faculty in what is arguably the most frequently asked question by faculty pursuing assessment in their classrooms: apart from tests, what sort of measurement strategies should I use to assess students' learning of specific course content as well as their acquired competencies with respect to the generic skills needed for successful learning across all disciplines.

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(Enclosure 2)

PERFORMANCE TASK LIST
RESEARCH PAPER ON GENETIC DISORDER/BIO 102 SPRING 2000
COVER SHEET

NAME: _____

DUE DATE: _____

TITLE: _____

This library research will count up to 15 points toward the lecture exam about Mendelian and Molecular Genetics. You must prepare an outline for an oral presentation about your research. Late submission will reduce your grade by 25% for the report. All items must be completed to receive maximum points. Check your work before submitting your assignment.

Please make sure to check the following:

1. Have you included the scientific description of the genetic disorder you decided to research? (Max. 2 points)
2. Did you include the following:
 - a. technique(s) used for detecting the disorder (chromosomal or genes)
 - b. common symptoms, known reasons for the disorder: non-disjunction, defective genes, and any other aspect,
 - c. the category- autosomal dominant, autosomal recessive, or X-linked,
 - d. abnormality in any specific chromosome number, an enzyme, the toxic metabolic waste, or variation in the gene,
 - e. normal vs. defective protein and its function in metabolism,
 - f. treatments available now or anticipated in the future,
 - g. a conclusion by highlighting what you have learned and your opinion about the advancements in the field in your discussion? (max.7 points)
3. Have you included the discussion of the disease by including references? (one Journal article, one web site reference for general information, and encyclopedia or CD-ROM; max. 2 points)
4. Have you included the description or definition of at least 10 scientific vocabulary words in the report? (max. 2 points)
5. Have you prepared an outline for oral presentation? Did you include annotated bibliography? (max. 2 points)

kp/sp00

ARTICLE

Using a Knowledge Pre-test/Post-test Analysis to Assess Teaching Goals

Lyle Hallowell, Sociology

Rationale for the Approach:

A pre-test/post-test model offers unique possibilities for determining the learning contributions of the class by adjusting for prior learning. The pre-test serves as a benchmark measure of prior learning. The post-test provides a measure of student performance after the completion of goal-related learning behaviors. Most importantly, the difference between the pre and post-test scores is the "value added," that portion of student knowledge clearly attributable to the current class.

Basic Steps Necessary for the Assessment:

- 1) The professor or group of professors identifies the relevant goals for the current assessment.
- 2) Course materials relevant to those goals must be identified, including concepts, findings and skills.
- 3) The specific concepts, findings and skills of greatest significance must be identified.
- 4) Test items must be developed with multiple items available for each goal.
- 5) The number of items for each goal and for the full test should be determined by considering their connection to the learning behaviors prescribed for the course, the form of analysis needed to understand and use the results and the amount of time available for exam administration.
- 6) The pre-test must be administered at the beginning of the semester before the results are corrupted by lecture or reading. An introductory statement about the importance of the assessment should precede it.
- 7) Pre-test results should be calculated promptly. These results provide baseline information on student knowledge and give guidance in making curriculum decisions throughout the semester.
- 8) The post-test must be administered after all learning behaviors relevant to the goals are completed, not necessarily at the end of the semester.
- 9) After post-test results are calculated, pre-test/post-test differences must be determined. Specific items and composites of items can be related to the goals, the results compared and necessary modifications determined.

Advantages of the Approach:

- 1) *versatility*: adaptable to many courses and goals;
- 2) *compilation*: results can be summed up or disaggregated;
- 3) *focus diversity*: reports can be done by section, by professor, by course, and by topic;
- 4) *audience diversity*: reports can be done for each faculty member, for groups of faculty, for the Department and for the college assessment;
- 5) *adaptability*: qualitatively oriented classes can devise a short answer essay equivalent;
- 6) *uniformity*: multiple section courses can use the same measurement instrument;
- 7) *brevity*: amount of assessment dedicated class time is small;
- 8) *comparability*: outcomes can be easily compared to enhance interpretation;
- 9) *value-added*: measures the difference attributable to the class;
- 10) *size efficiency*: can be used for large classes;
- 11) *communication*: output can be electronically sent and posted to save copying time and paper supplies; and
- 12) *statistical simplicity*: most measures are comparisons of percentages or means.

Limitations of the Approach:

- 1) substantial setup time before implementation;

- 2) reservations, limitations or problems associated with multiple choice format;
- 3) resources required include numerous scantron forms and scanning equipment;
- 4) precise scheduling requirements for the pre-test;
- 5) limited feedback during the term;
- 6) expected gains on a post-test are modest as shown by the relevant research literature and depend heavily on the mix of question types with specific information questions least likely to show improvement;
- 7) a portion of added knowledge will not show up due to correct guessing on the pre-test;
- 8) limited capacity to show what causes differences in performance although it is possible to add other variables that designate differences like time of day or any other aspect on which information can be collected; and
- 9) student alienation occurs in the absence of a clear reward for them, especially for those who dislike tests.

Major Variations:

Pre-test with Embedded Post-test Design

Prepare and administer pre-tests following the basic model, but put the post-test items on the regular class examinations. This creates moderate clerical problems, in that item analysis results must be extracted from the larger exams before results can be calculated. It does, however, have the advantages of less class time used, greater likelihood of student effort and earlier feedback.

Pre-test Adjusted for Guessing

An adjustment for correct guessing on the pre-test can be made by offering "I don't know" as an alternative on each item and/or asking students to rate their certainty with respect to each item. This will increase the pre-test/post-test difference somewhat.

Computer-enhanced Analysis of Results

If scanning equipment that creates a data file is used, student answers can be saved and more extensively analyzed. If each student's answers are linked by an ID code, other student characteristics can be entered as variables in ways that enhance the ability to interpret the results and make more precise modifications. For example, student background information, attendance records, exam and assignment scoring and student course and self evaluation items are used to analyze results in selected sociology courses. This approach requires special equipment, computer programming and statistical expertise and substantially more time. However, it offers the ability to analyze by student in addition to class; to analyze detailed change patterns from pre-test to post-test; to make comparisons with prior semesters; to determine the correlates of teaching and learning effectiveness; and to assess the assessment more effectively.

Qualitative Pre-test \Post-test Assessment

The adjustment for prior knowledge can be made qualitatively as well. Several professors administered short answer essay exams on key concepts. Students answered the same questions on essay exams. There are several advantages including: elimination of pre-test guessing and a more accurate pre-test score; capability to assess writing skills; and more incisive understanding of student errors. The main limitations are time needed to score pre and post-tests as well as reductions in the number of items.

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A S S E S S M E N T M A T R I X

COURSE Criminology Soc 210 Spring 1999

Teaching Goal What it is faculty are trying to teach students in a particular lesson, unit or course.	Behavioral Outcomes Observable behaviors or actions on the part of students that demonstrate that the learning intended in the teaching goal has occurred.	Measurements Strategies / techniques / instruments for collecting feedback data that evidence the extent to which the desired behaviors are demonstrated by students.	Evaluation Analysis and interpretation of the measurement results to determine the effectiveness with which the teaching goal is being achieved.	Modifications Recommended actions that respond to the measurement results for improving the achievement of teaching goals.
General Education Goal Students will engage in critical thinking by recognizing, questioning and evaluating key concepts and empirical findings that conflict with commonly accepted stereotypes.	Students will: <ol style="list-style-type: none"> 1. take a pretest of 20 items covering key issues in criminology for which stereotypes are common, 2. discuss these issues and related materials in class, 3. read relevant text materials, 4. answer multiple choice questions that include the commonly accepted stereotypes among incorrect answers, and 5. receive feedback on degree of stereotyping for each section of the course, noting improvement and discussing possible explanations. 	<ol style="list-style-type: none"> 1. Pretest and posttest stereotyping items will be the same except for a "don't know" choice on the pretest. 2. Pretest scores will be calculated by item, topic and class section for % correct and % stereotyped. 3. Aspects of each class section relevant to differences in scores will be collected such as class attendance, degree of related coursework, extent and quality of relevant class discussion, etc. 4. Differences in presentation of the material relevant to each stereotype will be analyzed with respect to % differences. 5. Analysis of pretest posttest change in correct answer % and in % stereotyping will be emphasized and analyzed using statistical analysis. 	<ol style="list-style-type: none"> 1. The correct answer % increased by 20% from pre to posttest. 2. Overall stereotyping was little changed, dropping only 1%. 3. The pattern was favorable in that the % stereotyped declined steadily over the four parts of the course as follows: 41-27-20-18%. 4. Excluding part one, topics receiving less class time had less improvement. One item received no coverage due to snow cancellation. It actually worsened to 58% stereotyped. 5. There were no statistically significant differences by class section. 6. Individual level analyses were done and produced fascinating results showing the strength of stereotypes. Overall 14% held onto them, 16% moved away and 14% changed to them. 7. By specific item, change was greatest for those like organized crime generating inherent student interest. 	Modifications are addressed with respect to teaching strategies and assessment procedures. TEACHING MODIFICATIONS: <ol style="list-style-type: none"> 1. Stereotypes are powerful and do not change easily. Students must be aware of the stereotype aspect, be engaged by the item and be especially attentive. The stereotyping problem will be addressed at the beginning of the first part and assessed thereafter as before. 2. A means of reporting student change will be devised and piloted in Fall 1999. 3. An analysis of class time will be undertaken to find if more time can be allocated to these issues. ASSESSMENT MODIFICATIONS: <ol style="list-style-type: none"> 1. Students will receive more individual feedback. 2. Analysis of individual traits associated with holding or changing will be devised.

ARTICLE

The Multi-section Course Challenge: Assessing COM 103

Esther Bogin, Communications

The task of assessing multi-section courses offers faculty unique opportunities and challenges to work together to ensure that their expectations of what students will learn in the course are met. Such expectations, of course, should be based on the course description that appears in the college catalogue. However, the different pedagogical routes taken by instructors to achieve those expectations provide the individualized texture of a section of the course that contributes to learning through academic freedom and faculty creativity. Thus, a challenge that we as a faculty teaching the same multi-section course must address is to ascertain whether or not we can agree on what it is students should learn from that course. Moreover, if we can agree, to what extent do our students actually accomplish those learning outcomes?

A recent case in point was the challenge of the Communications Department to assess COM 103, Public Speaking, a course taught by many full-time and adjunct faculty who possess different teaching styles, provide different classroom experiences, and, more significantly, have different attitudes towards the college-mandated task called assessment, cleverly defined as a process seeking continuous improvement in the teaching-learning partnership. Assessment activities relative to this course commenced during the 1997-1998 academic year with the involvement of full-time faculty.

The COM 103 assessment process focused initially on establishing a consensus with respect to the planning and development of this course as well as the competencies needed for the satisfactory design and delivery of a speech. In other words: *What do we expect our students to know upon completion of this course?* The course outline was quite specific on this point. However, were full-time faculty following it in designing and teaching their versions of this course?

In the spring of 1998, the COM 103 faculty met and agreed that the most pressing need was to establish consistency in the standards and expectations of all faculty teaching this course. Could we ascertain that this commonality existed? Therefore, work sessions were scheduled during times when the majority of full-time faculty eligible to teach COM 103 was able to meet. It should be noted that lunch and late afternoon snacks were generously provided to acknowledge appreciation of this extra effort.

Faculty viewed a commercial video of ten sample (non-NCC) college students. Speeches were graded and evaluated as excellent – satisfactory – unsatisfactory using a competency-based rating form. Findings validated our teaching of this course by revealing that we seemed to emphasize similar criteria for support, organization and delivery styles of speakers. Interestingly, comparison of the measurement instruments used by each instructor in their own classes reinforced the finding that we do look for similar behaviors.

Where did we go from here? It was suggested that a random sampling of NCC students' final presentations from different classes be taped for the purpose of assessing their performance relative to the same criteria. Keeping the rating scale as satisfactory – excellent – unsatisfactory, the percentage of the sample speeches falling into each category would be reported.

An ambitious task was ahead of us. The following questions were raised: Are we all expected to develop COM 103 students in the same way? Do we agree on the same competencies for speech performance AND speech preparation? Although the academic year of 1998-1999 was to serve as an opportunity to implement the assessment process in a representative course, the three-prong issue of obtaining a consensus as to the design, development and focus of the course itself (COM 103) became a prerequisite.

How were these questions resolved? A survey was designed to obtain the input of full-time COM 103 faculty, followed by a work session to interpret its results and use that input to consider the design of a

uniform assessment instrument. (Once again, food added to the spirit of agreement with which faculty approached these tasks.) The instrument was to be used to evaluate a random sampling of students' planning outlines and final presentations of a speech. In the final analysis, two instruments were created: the *Preparation Outline Evaluation Form* and the *Speech Performance Evaluation Form*.

Thus has the process of assessing student learning in COM 103 continued. The experience of developing an assessment design for this multi-section course itself had many twists and turns. What has helped us to move forward is determined and supportive leadership, a growing Department Assessment Committee, on-going written memos, an item on every department meeting agenda, open discussions, and, most of all, persistence and patience.

What tasks still lie ahead in the assessment of COM 103? The challenge of finding answers to the following questions. How do we involve adjunct faculty? Should they attend a similar workshop held by full-time faculty to ensure uniformity in evaluating the learning of students by assessing their performance relative to critical learning tasks? Should an orientation and criteria-manual be created for new faculty? Can we assess student's cognitive learning as well as encourage them to be accountable for their own learning? Can we develop a system to rotate the participation of faculty sections in the assessment process?

Thus, we see that the experience of assessing a multi-section course can be filled with opportunity and challenge for enhancing the quality of teaching and learning in that course. The key to successful results is the acceptance that assessment is an evolving process, is time-consuming, opens dialogues, finds commonality, and, at the same time, recognizes differences. Most of all, assessment of a multi-section course reinforces the notion that if we are unsure as to where we are going, the final result may be that we and our students end up in different places.

For other particulars, review the accompanying
COM 103 Assessment Matrix

For more information, you are invited to contact this author:

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ASSESSMENT MATRIX

COURSE Com 103 – Spring, 1999

Teaching Goal	Behavioral Outcomes	Measurements	Evaluation	Modifications
<p>What it is faculty are trying to teach students in a particular lesson, unit, or course.</p> <p>To develop the ability to research a given topic.</p> <p>To improve oral communication skills.</p> <p><u>Course-discipline goals:</u></p> <p>To understand how to determine the purpose of oral discourse.</p> <p>To develop the skills needed to develop a speech for a given purpose and audience.</p> <p>To develop the ability to use language appropriately and effectively.</p> <p>To increase the ability to address audiences dynamically and with confidence.</p>	<p>Observable behaviors or actions on the part of students that demonstrate that the learning intended in the teaching goal has occurred.</p> <p>Students will be expected to:</p> <p>Structure a specific purpose statement relevant to the specific audience and context.</p> <p>Narrow a topic, formulate a thesis statement, develop main ideas with supporting materials, organize the speech and show relationships among ideas by using appropriate transitions.</p> <p>Develop the ability to secure supporting materials, information and evidence through the use of the library, interviews, and other reliable sources.</p> <p>Use language that is vivid and appropriate to the topic, audience, and speaker.</p> <p>Use an extemporaneous conversational mode of presentation.</p>	<p>Strategies /techniques / instruments for collecting feedback data that evidence the extent to which the desired behaviors are demonstrated by students.</p> <p>Using a lottery format, a random number of Com 103 sections (taught by full-time faculty) and a random number of students in those respective sections will be selected. Their final speeches will be videotaped and put on a master tape to be viewed and evaluated by full-time faculty at a general faculty meeting (work session.)</p> <p>The preparation outlines for these speech presentations will also be collected.</p>	<p>Analysis and interpretation of the measurement results to determine the effectiveness with which the teaching goal is being achieved.</p> <p>Using the revised Speech Performance Competency Rating Form, can we ascertain that the Com 103 student completing the course will achieve a satisfactory (score of 8) performance level?</p> <p>Using the new Preparation Outlining Competency Rating Form, can we ascertain that the student will demonstrate satisfactory (score of 8) preparation outlining skills for the design of their speech presentations.</p>	<p>Recommended actions that respond to the measurement results for improving the achievement of teaching goal.</p> <p>The Spring semester, 1999 served as an opportunity to carry out the recommendations made by faculty at the Spring, 1998 work session. The focus of the Department's process was placed on obtaining a consensus as to:</p> <ul style="list-style-type: none"> • the design, development, focus of Com 103 (The full-time faculty were surveyed; see enclosed) • what competencies constitute an excellent – satisfactory – unsatisfactory speech presentation. • what competencies constitute an excellent – satisfactory – unsatisfactory speech preparation outline. <p>Full-time Com 103 faculty were invited to complete a survey and 7 responded. It was felt that emphasis and focus should be placed on: extemporaneous delivery, at least 3 graded, researched speeches be required; detailed preparation outlines should be required; most of us used videotaping as part of the evaluation process; only speeches to inform are required.</p> <p>Full-time Com 103 faculty input for both speech performance and preparation outline competency rating forms was invited. (See enclosed)</p> <p>The implementation component of this process will be done at the end of the Fall semester, 1999.</p>

ARTICLE

The Assessment Process & Student Ownership of Their Learning **(Non-traditional Ways to Assess Learning)**

Compiled By Esther Bogin, Communications

To motivate responsibility for their learning, students should be encouraged to participate directly in the development and implementation of the assessment process within the classroom. They can be involved in contributing to the design of exams, measuring their own learning from lesson-to-lesson or unit-to-unit, and giving feedback to course development, teaching style, instructional tools that work or don't work, and a host of other things that enhance their learning in the classroom.

The following measurements contain a potpourri of tasks used by faculty who have designed ways to obtain feedback from students that stimulates self-assessment of their learning. It is the basic contention of these teachers that classroom learning is maximized when students are proactive and commit to ownership of their educational experiences.

TASK: During the first week of class, ask students to select from a presented list of teaching (learning) goals as to what they want to achieve during the semester. Collect these goal sheets. During the last two weeks of the semester return these papers, and ask for an exit self-assessment of the extent that the students feel their selected goals were achieved. You may also ask them to explain how or why they feel their selected goals were achieved. This is a good venue for "summative" student feedback.

TASK: Before a session begins (usually after the completion of a unit), present students with four to five open-ended subject-appropriate questions and give them a few minutes to respond to them. They may work individually or in teams. Then hold a group discussion to obtain the 'perfect' answer to each question. When all of the questions have been answered, ask students to evaluate themselves as to where they stand in their learning of the content / theory / terminology, etc. underlying each question. Ask: "are you at the A-B-C or 'in trouble' level? Students are expected to respond silently and with introspection. Use this as a barometer of where students are in the learning cycle.

TASK: Obtain a *Pre-Unit* or *Pre-Lesson Assessment* by inviting students to assess their level of familiarity with key concepts / ideology / terminology. A sample question (from a Voice & Diction course) is:

Phonic Breathing

- A. Have no idea
- B. Have heard of it, but do not really know what it is
- C. Have some idea, but cannot put it into words
- D. Have a clear idea of what it is and can explain it

The corresponding *Post-Unit* or *Post-Lesson Assessment* would then ask students to assess their level of familiarity with the same key questions given on the pre-assessment. Do significantly greater numbers of students circle "D" than on the pre-unit or pre-lesson assessment?

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ARTICLE

A Rationale for Eliciting Student Feedback

Patricia Caro, History/Political Science/Geography

Students may be a valuable source of information for course-level assessment. As the "consumers" of our courses, most students have sincere and passionate opinions about the courses that they take. They know what the course exposed to them and expected of them, and they make judgments about its goals, assignments, techniques and tests. They "know" whether a course was 'worth it,' and they often express these ideas to their peers.

Encouraging students to express their ideas and feelings to us instructors may well facilitate our task of identifying what's working and what needs changing in the courses we teach. It is an important and fresh perspective on the type and degree of learning that takes place in our classes.

The following are two simple methods for obtaining student feedback that I have used to help me identify students' feelings on matters that are likely to influence how much they learn in the courses I teach:

Questionnaire: Students are asked to write an evaluation at or near the semester's end requesting their opinions and suggestions regarding:

- a. Quality of the concepts of the course
- b. Effectiveness of the organization of the course
- c. Quality of the text and readings in clarifying the concepts
- d. Relevance and appropriateness of the assignment
- e. Ability of the tests to illustrate student learning
- f. Ability of the instructor to explain and clarify the concepts.

(See Enclosed Form)

Informal Interview: Shortly after the middle of the term, students are asked to stop by during an office hour for a brief conference with the professor. Students are asked to describe any strong feelings regarding the concepts, organization, workload, readings, and in-class interactions between student and instructor of the course so far. Students are encouraged to express any frustrations they have.

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**STUDENT QUESTIONNAIRE
For Course-Level Assessment**

	Excellent	Good	Adequate	Poor
Quality of Concepts of the Course				
Effectiveness of Course Organization				
Quality of Text in Clarifying Concepts				
Quality of Reading				
Relevance of the Assignments				
Ability of the Tests to Illustrate Student Learning				
Ability of Instructor to Explain the Concepts				

Additional Comments :

ARTICLE

COM 101 : A Student-Based Assessment Model

Errol Hibbert, Communications

Students essentially learn at their own pace, and prefer learning things that they consider relevant to their individual lives. A substantial proportion (approx. 25%) of the teaching goals associated with COM 101 (Oral Communications) is, therefore, placed in the hands of the student. It is important that students take responsibility, at least in part, for whatever learning is expected to occur in a given course. Setting improvement goals for students' communications skills based on individually felt/perceived deficiencies is the course's way of conferring that partial responsibility on them.

The following is a summary of the assessment design:

TEACHING GOALS:

Competency in nine (9) communications skills areas to be selected by students from a listing of forty-five (45) presented by instructor, eg.: Listening, Self Disclosure, Speaking Descriptively and Assertiveness.

OUTCOME BEHAVIORS:

A written Outcome Report, after a ten-week period, giving scenarios in which the chosen skills were implemented successfully (Students' Self Test)

MEASUREMENT:

Initially, each student submits an action plan for each skill area for approval. A grade is awarded for appropriateness and clarity. Each action plan should include: (1) the skill deficiency selected (2) desired competency goal (a little – a lot – total) (3) steps to achieve goal (4) test of achievement of goal.

EVALUATION:

Although the assessment process to be brought to bear on individual students is inherently subjective, the following factors are taken into consideration: sincerity, honesty, and diligence. Success in six (6) of the nine (9) selected skills areas, as reflected in the students' Outcome Report, is considered to be satisfactory performance.

MODIFICATIONS:

Enthusiasm and cooperation on the part of students have jumped 50% in the last four semesters. The assumption that improvement in the selected skills areas has actually taken place might still be suspect, since the total exercise comprises 25% of the student's final grade. A method to conduct a validating assessment of skill improvement on a voluntary basis is being explored to lend credibility to the process.

For information, you are invited to contact this author:

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CALL FOR CONTRIBUTIONS

Guidelines for Faculty Submissions

Academic Senate Assessment Committee
Manual Revision Subcommittee

Dear Colleagues:

In order to enhance the value of The Assessment Supplement we are seeking informative articles on strategies, assignments, methods, resources, and materials for assessing student learning in disciplines and general education. We are looking for practical ideas and materials that will be useful to a variety of instructors who may adapt the information to their particular disciplines and courses. Since brevity, clarity, and concrete examples are assets in such manuscripts, we do reserve the right to condense and adapt your material (with the author's consultation and permission).

Your participation in the sharing of assessment techniques with your colleagues is a significant contribution to the quality of education at Nassau Community College. Think of yourself as having a written dialogue with your readers in which explain your goals and objectives, methodology, and your interpretation of the results. In this way, you provide a hands-on approach that leads your readers step-by-step through what you did and how you did it. Your purpose is to have others adapt your ideas and methods for use in their teaching.

Length:

Submissions should be limited to four double-spaced, typed pages in written or electronic form.

Readership:

Faculty members who are interested in learning more about the assessment process as it applies to their classrooms, their challenges, and their need for recommendations and suggestions to enhance the teaching and learning in their classrooms as well as their departments.

Current Areas of Faculty Interest:

Non-traditional methods to measure student learning, handling multi-sectioned courses, getting started, dealing with student and/or faculty reluctance, quantifying qualitative observations of student learning, student-driven self assessment measurements, pre-testing – post-testing, general education – especially the assessment of critical thinking.

Recommended Format:

Use a relatively informal, direct, and conversational style. Normally, research and convention papers are not appropriate. If it is necessary and important to cite copyrighted materials, they should be cited completely within the body of the text, rather than in footnotes and bibliographic citations. It is recommended that sample assessment matrices be included to standardize the sharing process.

Submitting Your Contribution or Suggestions :

Complete the information requested below to indicate your contribution to the next (annual) Assessment Supplement:

Your Name: _____ Your Extension: _____

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_____ YES, I would like to contribute an article on:

_____ NO, I cannot contribute an article at this time, but would like to see this (these) question(s) / issue(s) addressed in a future Supplement.

Return to:

Esther Bogin, Communications Department
or
Mary Peck, Student Personnel Services

Nassau Community College

QuickStart to Classroom Assessment

The *QuickStart* is the user-friendly supplement to the NCC manual: *Concepts and Procedures for Academic Assessment*, which is the detailed document that houses information on the evolving and visionary assessment practices at the institutional, departmental and most particularly, classroom levels. Since the *QuickStart* is specifically designed to serve as a pragmatic, concise reference, you are encouraged to use it in the documentation and reporting of information pertinent to the design, implementation, and evaluation of your classroom performance assessment process.

It is imperative that we all remember the basic premises of classroom performance assessment. The primary objective of this process is to elevate the quality of teaching/learning experiences and outcomes. The focus is on student learning. Our participation in this process reinforces the NCC vision to achieve academic excellence through scholastic classroom pedagogy and direct application of the results of our research to instructional approaches.

The Organization of QuickStart

The organization of this *QuickStart* integrates the five columns of the Goal Based Assessment (GBA) Matrix - *Teaching/Learning Goals, Outcome Behaviors, Measurements, Evaluation and Modifications* - which are the five component steps taken by faculty to carry out the process of classroom assessment. The basic features of the *QuickStart* contents are as follows:

- The basic format of the GBA Matrix is explained with special attention to the purpose, the definition and the information called for in each of the five entry columns.
- Standard language constructs are identified and suggested for each column entry (for any discipline) to provide greater clarity in the communication of GBA designs and results.
- Examples of entries for each column of the Matrix are also included to illustrate the application of the standard language prescriptions in the implementation of the classroom assessment process.
- The handy GBA-At-A-Glance included at the end of the *QuickStart* gives a concise overview of a matrix.



STEP ONE: Teaching/Learning Goals

Purpose: To answer the following question:

"What main concepts, skills, and/or principles do our students need to learn from this lesson, unit or course?"

The teaching/learning goal may focus on general education learning and/or discipline specific learning that we expect our students to acquire.

Some examples of teaching/learning goals for different disciplines are:

- To improve students' listening skills (*Communications*).
- To develop students' understanding of the meaning and measurement of inflation (*Economics and Finance*).
- To teach students the statistical methods used to represent and describe data sets (*Mathematics and Statistics*).

STEP TWO: Outcome Behaviors

Purpose: To answer the following question:

"What are students expected to do (behaviors or actions) in order to demonstrate that the teaching/learning goal was achieved (that the expected learning occurred)?"

Some examples of outcome behaviors for different disciplines are:

- Students will be able to evaluate their level of indulgence (from almost always to almost never) in the use of effective and ineffective listening skills (*Communications*).
- Students will distinguish different levels of inflation (normal inflation, hyperinflation, disinflation, and deflation) by calculating a consumer price index using hypothetical data (*Economics and Finance*).
- Students will be able to reduce a set of statistical data to a frequency distribution, calculate the mean, mode and standard deviation of the distribution, and interpret these measures for samples and for populations (*Mathematics and Statistics*).

STEP THREE: Measurements

Purpose: To answer the following question:

"What strategies (activities/tools/instruments/devices/techniques) will be used to demonstrate the extent to which the teaching/learning goal was achieved?"

The measurement instrument for this purpose may assume a *formal* or *informal* design.

To measure student learning **FORMALLY**, you may want to use the following:

*Quizzes & Tests, Critique Essays, Lab Reports,
Homework Assignments, Customized Exercises/
Projects*

**NOTE: Formal measurements are usually assigned grades and tend to indicate learning achievement at the end of lessons, units or courses.*

To measure student learning **INFORMALLY**, you may want to use the following:

- Pose and solicit questions/comments
- Initiate discussion
- Elicit student feedback on what they are actually learning
- Use any customized exercise

**NOTE: Informal measurements are used throughout the semester and are intended to complement formal evaluation instruments. Informal evaluations usually are not, but may be, graded.*

Performance Criteria

Whether you use formal or informal measurement techniques, you will need to set definite criteria or levels of proficiency for students' performance on the measurement task. These act as indicators that confirm that satisfactory learning, as well as the expected achievement of the teaching/learning goal, has occurred.

The criterion or proficiency standard that you (the instructor) set should answer the following questions:

What basic level or extent of achievement will enable you to recognize that students have learned the desired goal?

~Or~

What basic percentage/level/extent/ nature of achievement will confirm that the intended teaching/learning goal was satisfactorily attained?

Reminder: *The expected performance criteria should be determined and stated clearly before the next step (Evaluation) in the assessment process takes place.*

For Example: Communications students can be given a pre-test and post-test of listening skills to determine their use of effective listening skills. The level of proficiency on the post-test is set at 71%, resulting from an expected group gain of 42%.

STEP FOUR: Evaluation

Purpose: to analyze the measurement results in order to determine the extent to which the teaching goal is being achieved, and answer the following questions:

- To what extent did learning take place?
- How did the measurement instrument contribute to the achievement of the teaching/learning goal?
- What changes, if any, need to be made?
- What does the student feedback tell us about how they learn?

For example: Seventy-eight percent (78%) of the Economics and Finance students demonstrated appropriate learning of inflation concepts by their ability to correctly compute required inflation numbers from consumer price numbers on the assessment exam.

STEP FIVE: Modifications

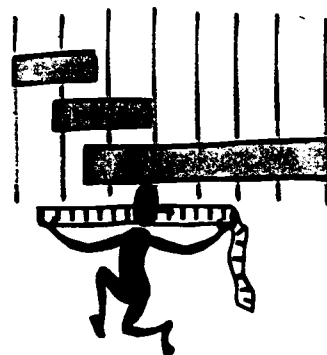
Purpose: to analyze...

- The results of classroom assessment, which may indicate the need for actions to improve the achievement of teaching/learning goals. Implemented modifications provide the basis for subsequent assessments testing their effectiveness in intended improvements; thus, assessment becomes an evolving process.
- The results of classroom assessment, which may identify successful teaching/learning practices that should be further emphasized.

The modifications step of the assessment process answers the following questions:

- What has the classroom assessment experience indicated about improving student learning or the teaching strategies?
- What kinds of changes are needed?
- What changes should be made with respect to the measurement instrument, and/or the expected behavioral outcomes, and/or the intended teaching/learning goals?

For Example: For Mathematics and Statistics it is recommended that formal instruction on the use of the calculator be a uniform practice in all sections of the course. Faculty should also consider a brief unit on sources of statistical data, incorporating the internet as a major data-finding tool that is applied to correlate course material to real life applications.



PHASES OF CLASSROOM ASSESSMENT *(Putting it all together)*

Phase I - Planning

1. Select the class to focus on and plan the assessment.

Note: Multi-section courses with various instructors will require coordination of the goals to be assessed. This will provide standardization of basic components of course development, which all students taking the course can expect to learn. See your department assessment representative (or contact a mentor) for more details.

2. Focus on one or two main teaching/learning goals for the course. Reduce the goals to specific objectives.
3. Identify student behaviors determined to be important outcomes of the learning process.
4. Select and design the measurement instrument(s) for obtaining appropriate feedback.
5. Set specific performance criteria to be used as yardsticks that measure the extent of learning.
6. Use the Assessment Matrix to communicate your design to others.

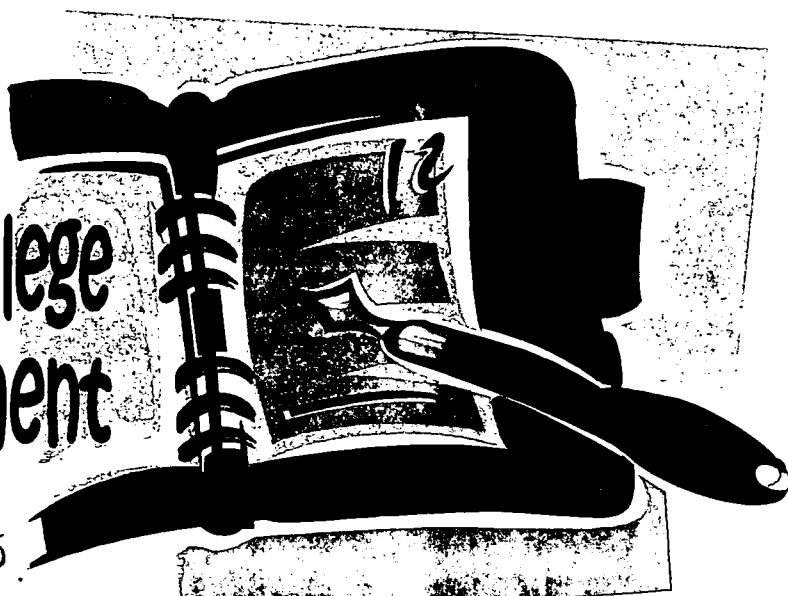
Phase II - Implementation

7. Teach the target unit related to the teaching/learning goal being assessed.
8. Administer the measurement instrument and collect the data.
9. Evaluate student feedback concerning the course-specific goal and related behavioral outcomes.
10. Use the matrix to communicate the implementation process.

Phase III - Responding

11. Communicate the results to students *(Optional)*.
12. Discuss with other faculty the impact of the assessment on teaching/learning. Suggest needed modifications to improve and/or maintain the learning process.
14. Communicate the results by completing the Assessment Matrix.
15. Use the matrix to communicate the results and recommendations.

Nassau Community College Course Level Assessment



Goal Based Assessment Matrix (GBA) At-A-Glance

For the sake of uniformity in reporting, it is recommended that the GBA matrix be used. The five steps of the GBA are easily communicated to other faculty and/or other interested parties by recording the informational statements pertaining to *Teaching/Learning Goals, Outcome Behaviors, Measurements, Evaluations and Modifications* in the appropriate columns of this form. This method provides a uniform format for communicating the designs, implementations and results of classroom assessments.

GBAs-At-A-Glance: Key to Success

Step 1	Step 2	Step 3	Step 4	Step 5
Teaching/Learning Goals	Outcome Behavior	Measurements	Evaluations	Modifications
Answer this Question	Answer this Question	Answer this Question	To analyze and interpret the measurement results to determine that the teaching goal is achieved.	To provide Analysis and to report and document teaching and learning practices
What main concepts, skills and/or principles do you want your students to learn?	What are students expected to do to demonstrate that learning occurred?	What strategies (activities, tools, instruments, devices, techniques) will be used to demonstrate the extent to which the teaching/learning was achieved?	Answer these questions:	To serve as a recommendation for actions to improve the achievement of teaching goals and student learning
Language i.e.:	Student will be able to:	a. <u>Formal (Summative) i.e.,</u>	How did the students perform?	
To improve	Demonstrate	quizzes, tests, essays, true-false tests, pre and post tests,	To what extent did learning take place?	Answer this question:
To teach	Apply	critique essays, term papers,		
To involve	Respond to	lab reports, homework	the measurement instruments used tended to show that...	What has the classroom assessment experience indicated about how to improve student learning or teaching strategies?
To develop	Differentiate	assignments, customized	faculty reviewed the results and found that...	Is there a need for change with respect to:
To understand	Explain	exercises or projects	students responses demonstrated that...	
To enhance	Relate	*Note: Usually graded	the results indicated that...	
To define	Identify		Student feedback	
To list	Plot			
To name	Draw			
To relate	Calculate			
*To develop skills needed to:	Define	b. <u>Informal (Formative) i.e.,</u>		
conceptualize	Find	Solid questions, comments,		
synthesize	Enumerate	Initiate discussion, elicit		
analyze	Draw	student feedback customized		
*To transfer information to	Calculate	exercises.		
	Discuss	*Note: Usually not graded		
	Formulate	Use the following languages to construct measurements:		
	Show	When presented with...students will be expected to...		
	Use	When asked to perform...		
	Experiment	Students will achieve %		
	Compare	When asked to summarize...		
	Contrast	Students are expected to		
	Critique	Students will be able to...when asked to...		
	Diagram	When given a true-false quiz students...		
	Inspect	are expected to achieve %		
	Debate	Students will be asked to explain orally...		
	Question	three concepts incorporating the		
	Relate	vocabulary of		
	Examine			



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